



Innovative partnership offers benefits for all

by Richard Visser

Abstract | ASML has established an innovative partnership with Philips' MiPlaza. The agreement gives MiPlaza and its customers access to a PAS 5500/100D stepper – an invaluable and unique development resource. Using the stepper, MiPlaza customer Cytocentrics recently developed a successful double-sided process, providing real-world verification of ASML's 3DAlign option for backside alignment.

Good partnerships offer benefits to all the parties involved and beyond. That is the guiding principle behind the relationship between ASML and MiPlaza – Philips' open innovation center for industrial research into microsystems.

The relationship dates back to October 2006, and developed from ASML's cooperation with the Holst Centre, an independent "More-than-Moore" research center created by the Belgian R&D institute IMEC and the Netherlands Organization for Applied Scientific Research (TNO). As part of the arrangement, ASML provided the MiPlaza Thin Film Facilities department with a fully equipped PAS 5500/100D i-line stepper.

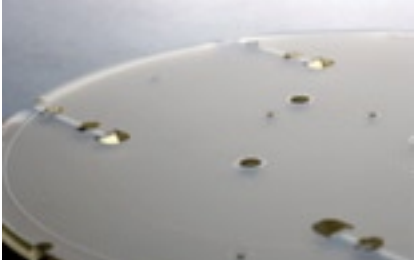
In addition to supplying the stepper, ASML also offers MiPlaza's customers expert support through our Special

Applications group. For example, ASML may supply new technologies or system modules to address a customer's particular process need. If that need is sufficiently widespread, we can then offer the technology to other customers.

Unique industrial research resource

The PAS 5500/100D stepper is housed in MiPlaza's multi-purpose cleanroom for thin-film device fabrication at the High Tech Campus Eindhoven. It can be used by MiPlaza as a shared service to its customers as well as the Holst Centre for research, product development and pre-production. The agreement also gives ASML access to the tool and other MiPlaza facilities for testing and demonstration purposes.

"We operate in the world of open innovation, providing industrial research services for external companies as



well as Philips,” explains Frank Dirne, head of the MiPlaza Thin Film Facilities department. “With the addition of the PAS 5500 stepper, we can now offer our customers a complete range of lithography solutions from a contact aligner through reduction lithography to e-beam. The stepper also lets our customers run at pre-production throughput levels for faster process tuning. That’s invaluable for industrial research, and unique to MiPlaza.”

worked first time. This combination also enables back-side alignment with ten times higher accuracy than the best alternative technique.”

Since that first success, Cytocentrics has gone on to achieve successful double-sided processing on thinned (400 µm and 300 µm) wafers. These thin wafers are used for so-called “through-hole” processes often found in MEMS manufacturing.

For Cytocentrics, this application is just one of the benefits of having access to the MiPlaza stepper. “We focus on smaller projects and start-up companies, so the scale is too small to interest foundries but too large for universities,” Peter adds. “The MiPlaza facilities and the ASML stepper provide

“Back-side alignment with ten times higher accuracy than the best alternative technique”

First-time back-side align success

One of the companies taking advantage of MiPlaza’s unique facilities is Cytocentrics, who use the cleanroom facilities to develop and produce microsystem products for a number of external customers. A MiPlaza customer for 3 years, Cytocentrics recently became the first company to successfully integrate back-side alignment using the PAS 5500/100D and ASML’s 3DAIAlign option.

“Double-sided processing is becoming increasingly necessary in numerous applications,” says Peter van Stiphout, Director of Cytocentrics BV. “We needed to investigate it for a product we’re developing for a customer. Using the 3DAIAlign option on the PAS 5500 stepper we created a process which

a production-like environment that helps us get to market faster. That gives us a competitive advantage and offers big benefits for our customers.”

A win-win situation

ASML’s relationship with MiPlaza is a winner for everyone. It gives MiPlaza cost-effective access to an advanced, production-level tool that is vital for the center’s industrial research. MiPlaza’s customers gain access to this tool and to ASML support, allowing them to deliver innovative new products faster.

For ASML, it offers the perfect opportunity to prove the value of innovations like 3DAIAlign in real-life settings. And that allows us to offer new options to our wider customer base earlier and with guaranteed reliability. ◀

MiPlaza – enabling open innovation

MiPlaza (Microsystems Plaza) offers world-class expertise, service and infrastructure, enabling you to carry out high-tech research in the most efficient way. In a world of increasing technological complexity, MiPlaza provides fast and cost-effective access to the advanced technology and know-how that will help you accelerate your pace of innovation.

Located at the High Tech Campus Eindhoven, the Netherlands, MiPlaza operates in an Open Innovation environment, working with high-tech global companies, start-ups, research institutes and entrepreneurs in a networked ecosystem, forming a cradle of innovation and business creation.

Cytocentrics – the microsystems technology center

Cytocentrics BV was founded in January 2005 as a full subsidiary of Cytocentrics AG. In addition to developing and producing key microsystem products for its parent company, Cytocentrics BV has evolved into a leading microsystems technology service provider offering smart solutions that combine consultancy and state-of-the-art technology with expertise and experience.

The company specializes in translating customers’ ideas into tailor-made thin-film designs with the focus on quality, feasibility and production costs. Its products are mainly used in the life sciences and pharmaceutical industry, where product miniaturization is required for drug discovery, diagnostics and therapeutics, but is also active in other market segments.